**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**
Waste Management and Remediation Division
Waste and Underground Tank Management Bureau
Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

**SOLID WASTE SECTION ROLES AND RESPONSIBILITIES**

The Department of Environmental Quality's (DEQ), Solid Waste Section (SWS), is responsible for ensuring activities proposed under the Solid Waste Management Act, the Septage Disposal Licensure Act, the Integrated Waste Management Act, and the Motor Vehicle Disposal & Recycling Act comply with current regulations. A land application site must first be approved by the county in which the site is located before the request for approval is submitted to DEQ's SWS. Each licensee is responsible for following the Administrative Rules of Montana (ARM) for Cesspool, Septic Tank, and Privy Cleaners, as well as other restrictions and requirements put in place by the county in which the land application site is located.

# 1. PURPOSE AND NEED FOR ACTION

## 1.1 SUMMARY

On February 1, 2018, Fewer Pumping Service (Fewers) applied for a new septage land application site to DEQ for approval. Fewers proposes using 94 acres of the Jennifer Fewer property for the land application of septage and graywater. The site is located near Fort Peck, MT, in Valley County. The land application site was selected solely by the applicant. The purpose of this environmental assessment (EA) is to determine if the site meets the requirements of the Septage Disposal and Licensure Laws (SDLL).

## 1.2 PURPOSE AND NEED

In accordance with Montana Code Annotated (MCA), Section 75-1-102, the Montana Environmental Policy Act (MEPA) is procedural, and requires the "adequate review of state actions in order to ensure that environmental attributes are fully considered by the legislature in enacting laws to fulfill constitutional obligations; and the public is informed of the anticipated impacts in Montana of potential state actions." According to MEPA, EAs are the procedural documents that communicate the process agencies follow in their decision-making. An EA does not result in a certain decision; but rather, it serves to identify the potential effect of a state action within the confines of existing laws and rules governing such proposed activities so that agencies make balanced decisions. The MEPA process does not provide regulatory authority beyond the authority explicitly provided in the existing statute.

The SDLL regulations establish minimum requirements for the land application of septage. The EA is the mechanism DEQ uses to perform the following:

- Disclose whether a proposed land application site meets the minimum requirements for compliance with current laws and rules;
- Assist the public in understanding the licensing laws of the Septage Disposal and Licensure program;

- Identify and discuss the potential environmental effects of the proposed land application activity if it is approved and becomes operational;
- Discuss actions taken by the applicant, and the enforceable measures and conditions of the license designed to mitigate the effects identified by DEQ during review of the application; and
- Seek public input to ensure DEQ has identified all the substantive environmental effects associated with the proposed land application of septage and graywater at the proposed location.

Septage is the liquid and solid material removed from a septic tank, cesspool, portable toilet, or similar treatment works that receives only waste and wastewater from humans or household operations. The land application of septage is an economical and environmentally sound practice. When properly managed, septage is a resource. When used as a soil conditioner, septage contains nutrients that can reduce the reliance on chemical fertilizers. A properly managed land application program recognizes the benefits of septage and employs practices to maximize the value of the septage. Land application of septage benefits agricultural land by the addition of moisture, organic matter, and nutrients to the soil, and does not adversely affect public health. When the septage is applied as a soil conditioner, the use is considered an application rather than a disposal because the materials in the septage benefit the soil by adding nutrients, moisture, and improving the soil tilth. This will help improve growth of crops or grasses grown on the site.

## 1.3 PROJECT LOCATION AND STUDY AREA

Richard Fewer of Fewer Pumping Service (applicant) has applied to DEQ for approval of a new site for the land application of septage and graywater. The site is located on property owned by Jennifer Fewer in Valley County. The property is being used for agricultural and pasture purposes. The applicant will use the site as needed for the land application of septage and graywater.

The land application site is in Section 15, Township 26 North, Range 40 East, Montana Principal Meridian, Valley County, Montana (Figure 1.1). As shown in Figure 1.2, the area to be used for land application within Section 15 consists of three parcels that encompass a total of 94 acres. The three parcels' acreages consist of 16, 32, and 46 acres located in three separate fields. The parcels will be rotated annually so one parcel is not used in consecutive years (Figure 1.3).

The Town of Fort Peck is in northeast Montana, approximately 20 miles south of Glasgow, south of Highway 2 (Figure 1.4). Fort Peck sits in southern Valley County on the north end of Fort Peck Lake. The site is located south of Highway 24 off Duck Creek road to the west (Figure 1.5). The site sits directly to the east of 640 acres of Montana State Trust Lands and northeast of the Charlie Russell Wildlife Refuge owned by the US Fish and Wildlife Service. Figures 1.6 through 1.11 were taken during DEQ's site visit, and provide photographs of the areas proposed for land application.

**Figure 1.1: Proposed Land Application Site Location (Site in Red)**

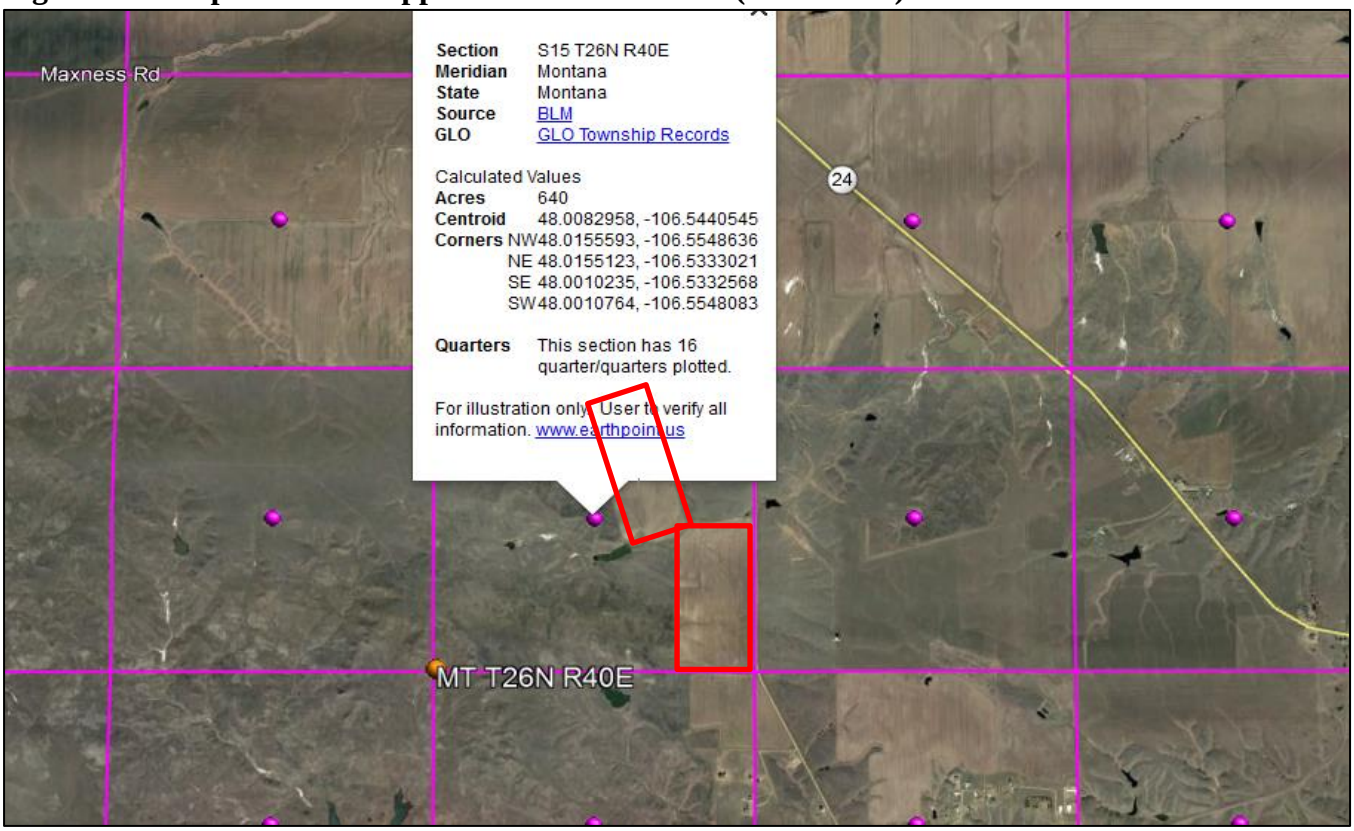



**Figure 1.2: Map showing Property Owners property boundaries in Red.**

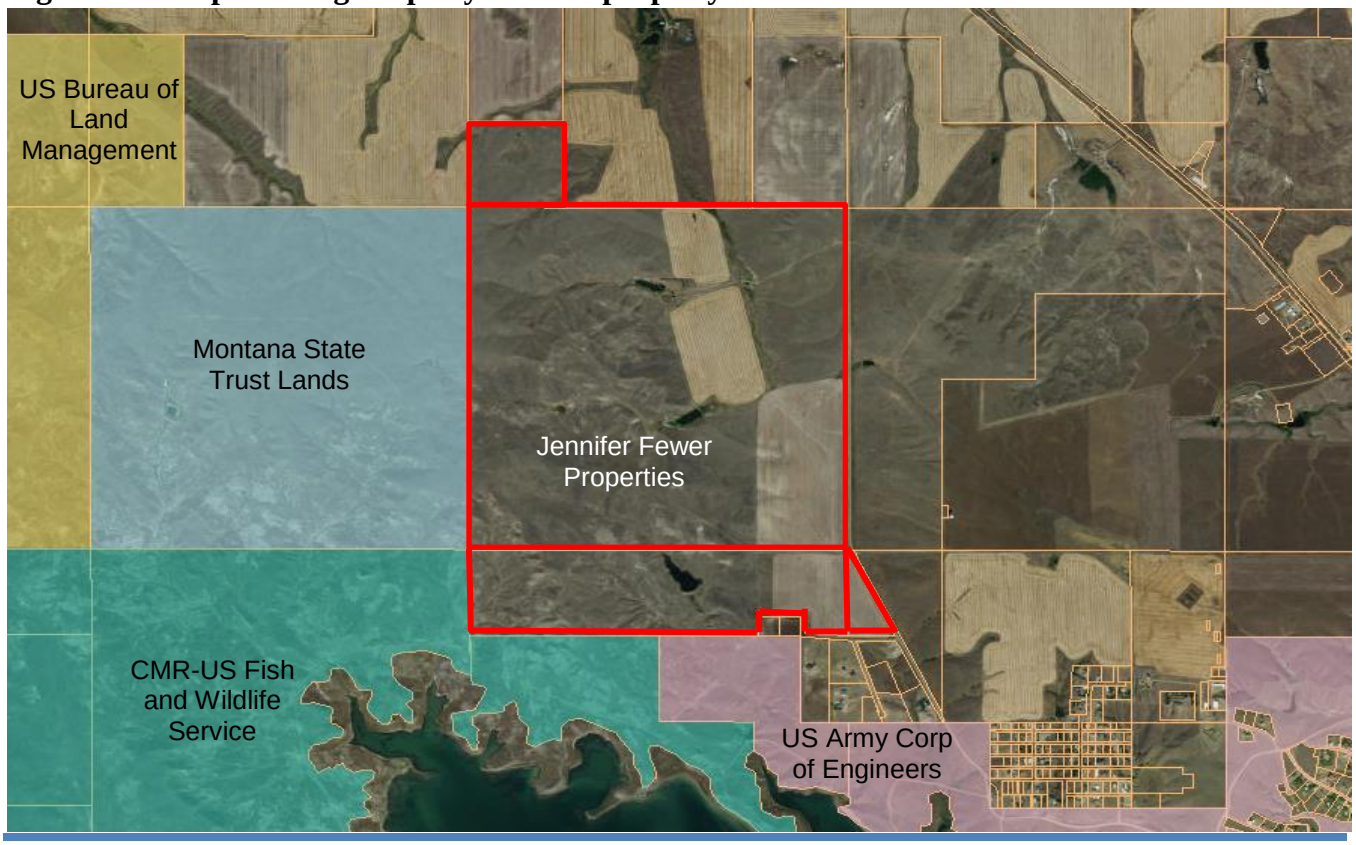
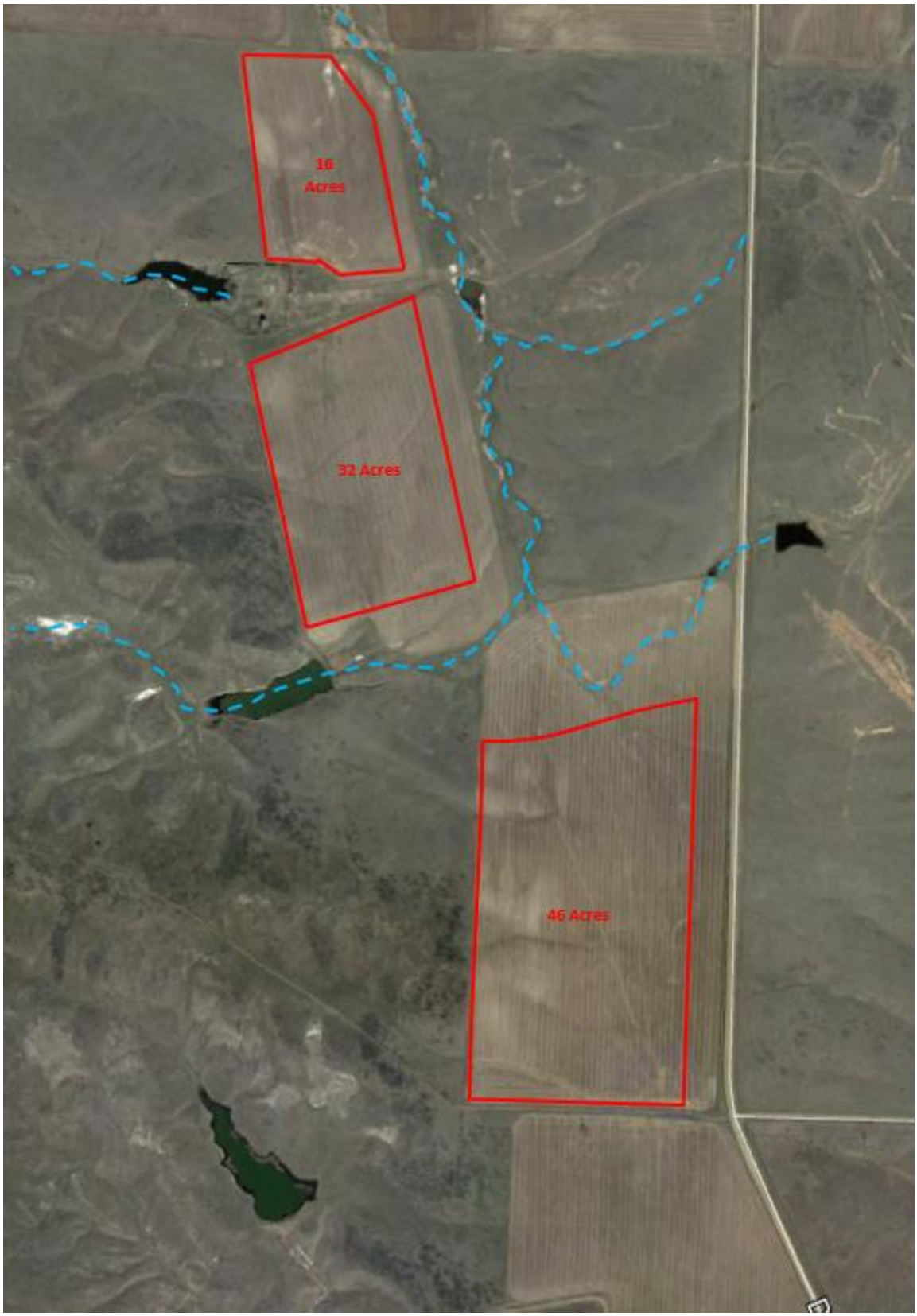


**Figure 1.3: Map of parcels within proposed land application site (site in Red)**




*https://mtdeq.maps.arcgis.com/home/webmap/viewer*

**Figure 1.4: Site Location in relation to the State of Montana (Circled in Red)**


**Figure 1.5: Site Location in relation to Fort Peck, MT (Circled in Red)**

**Figure 1.6: View from the North facing South**

**Figure 1.7: View of Site facing West**

**Figure 1.8: View of Site facing West**

**Figure 1.9: View of Site from Duck Creek Road facing Northwest**

**Figure 1.10: View of site from Duck Creek Road facing Southwest**

**Figure 1.11: View of the Site facing East between the 16-acre and 32-acre parcel**

## 1.4 REGULATORY RESPONSIBILITIES AND REQUIREMENTS

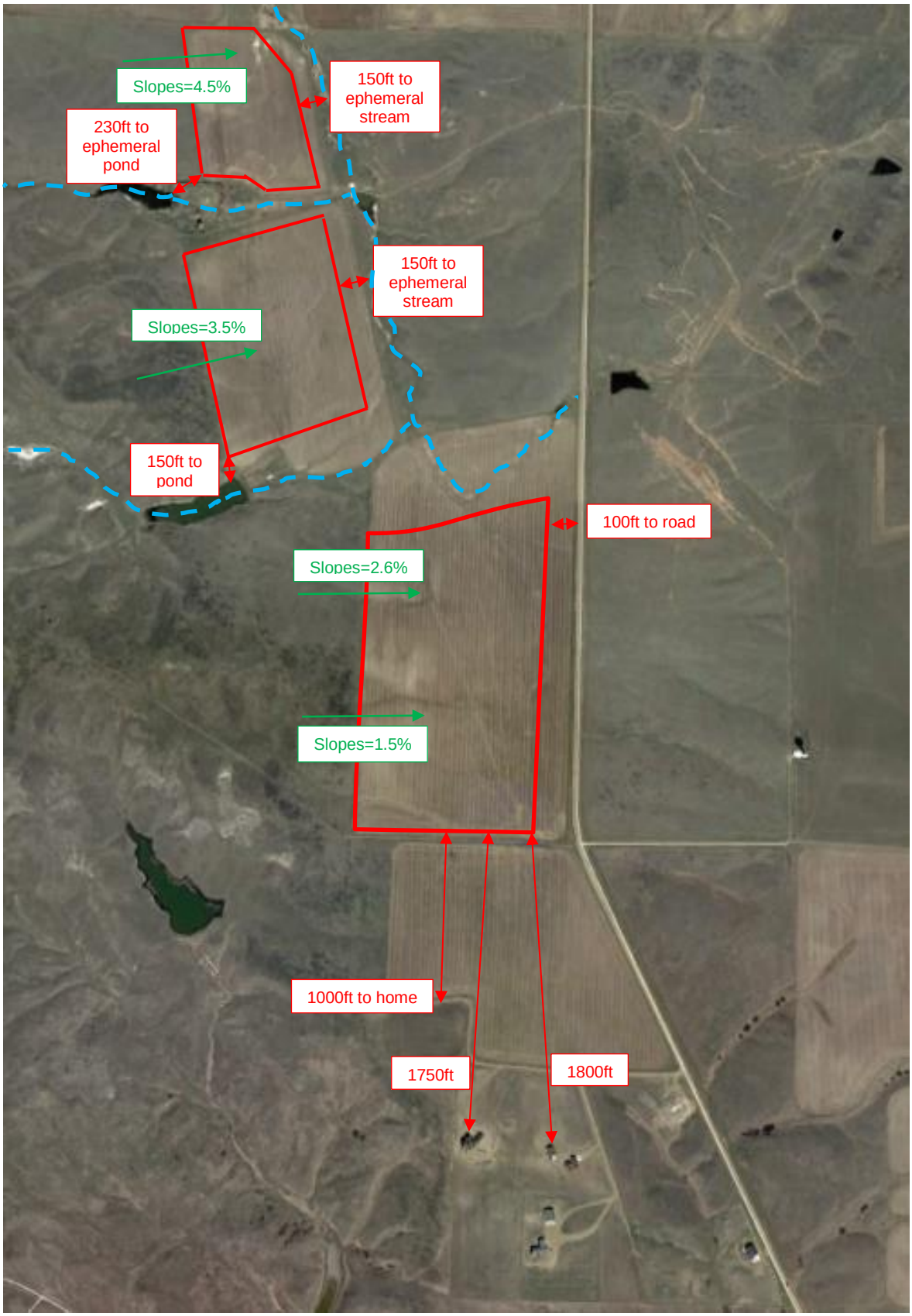
The applicant would maintain the setbacks during all land application activities according to the requirements of ARM 17.50.809. The setback requirements, provided in Table 1.1, prohibit the application of pumpings within 500 feet of an inhabitable building, 150 feet of any state surface water, including wetlands and intermittent drainages, 100 feet of any county-maintained road, and 100 feet of any drinking water source. Land application is also prohibited on slopes greater than 6%, as well as where the seasonally high groundwater is six feet or less below the ground surface.

**Table 1.1: Land Application Site Setback Requirements**

| ARM Reference | Setback Requirements |
|---|---|
| 17.50.809(1) | Pumpings may not be applied to land within 500 feet of any occupied or inhabitable building. |
| 17.50.809(2) | Pumpings may not be applied to land within 150 feet of any state surface water, including ephemeral or intermittent drainages and wetlands. |
| 17.50.809(3) | Pumpings may not be applied to land within 100 feet of any state, federal, county, or city-maintained highway or road. |
| 17.50.809(4) | Pumpings may not be applied to land within 100 feet of a drinking water supply source. |
| 17.50.809(6) | Pumpings may not be applied to land with slopes greater than 6%. |
| 17.50.809(8) | Pumpings may not be applied to land where seasonally high ground water is 6 feet or less below ground surface. |

Figure 1.12 provides an aerial view of the land application site, showing setbacks from nearby homes and from a road located east of the site. The location of the land application site meets setback requirements according to ARM 17.50.809. If homes are constructed in the future that are located within 500 feet of the land application site boundaries, the land application site boundaries will be relocated to comply with the setback requirements. The ephemeral drainage is indicated in Figure 1.12 in blue. The land application site maintains a 150-foot setback from the drainage at all points throughout the site. All distances on the map were measured using the esri ArcGis program.

**Figure 1.12: Site with Setbacks**



### 1.5 PUBLIC INVOLVEMENT

DEQ published the draft EA on April 20, 2018, beginning a 30-day public comment period. DEQ distributed the draft EA to adjacent landowners and interested persons through mail, and published a notice about the document's availability in the local newspaper. Copies of the document were sent to the Valley County Sanitarian. DEQ received no written comments from the public.

# 2 DESCRIPTIONS OF ALTERNATIVES

## 2.1 INTRODUCTION

This chapter summarizes alternatives to the proposed plan, including the No Action Alternative required by MEPA. MEPA requires the evaluation of reasonable alternatives to the Proposed Action. Reasonable alternatives are those that are achievable under current technology and are economically feasible as determined solely by the economic viability for similar projects having similar conditions and physical locations and determined without regard to the economic strength of the specific project sponsor.

According to ARM 17.4.609(3)(f), an EA must discuss reasonable alternatives whenever alternatives are reasonable and prudent to consider. DEQ has not included any alternatives to mitigate impacts because Fewer's application, and operation and maintenance plan, contain the mitigation necessary to prevent significant impacts. All application documents are considered public record and may be viewed at any time during normal business hours.

### 2.1.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed septage land application site would not be approved by DEQ. Therefore, the land application site could not be used by Fewer Pumping Service, and disposal of septage would have to occur at another approved location.

### 2.1.2 PROPOSED ACTION

The Proposed Action is approval of the Jennifer Fewer property for land application.

## 2.2 LAND APPLICATION SITE OPERATIONS

The land application of septage and graywater is considered the beneficial use of a waste product, when the material is applied in accordance with the regulations governing land application. The operational requirements for a land application site, outlined in Table 2.1, include: the removal of all non-putrescible litter within six hours of application; the prohibition of septage application on frozen, flooded, or snow-covered ground if the pumpings may enter state waters; and the application at a rate not exceeding the nitrogen requirement of the grasses grown onsite. Pumpings must also be either injected below the land surface, incorporated within six hours of application, or pH adjusted for at least 30 minutes prior to land application.

**Table 2.1: Land Application Site Operational Requirements**

| ARM Reference | Site Restrictions/Requirements |
|---|---|
| 17.50.809(10) | All non-putrescible litter must be removed from the land application site within 6 hours of application. |
| 17.50.809(12) | Pumpings may not be applied at a rate greater than the annual application rate (AAR) of the site for crop nitrogen requirement on an annual basis. |
| 17.50.810(1) | Pumpings may not be applied to flooded, frozen, or snow-covered ground if the pumpings may enter state waters. |
| 17.50.811(3) | Pumpings may be applied only if the person first performs one of the following vector attraction and pathogen reduction methods:<br>• injection below the land surface so no significant amount remains on the land surface within one-hour of injection;<br>• incorporation into the soil surface plow layer within 6 hours of application;<br>• addition of alkali material so that the pH is raised to and remains at 12 or higher for a period of at least 30 minutes; or,<br>• management as required by 17.50.810 when the ground is frozen |

The sites available for land application will be rotated on an annual basis, so that a parcel, or section of a parcel, used for land application one year will be inactive the next year. Fewer's proposed land application site will utilize a three-parcel rotation that will allow grasses and other crops to be grown in the two nonuse years while the third parcel will be used for land application. This rotation allows the vegetation, or crop of choice, to utilize the nitrogen and other nutrients added during the land application process. The landowner currently cultivates crops on the property. The rules do not require the harvesting of a crop or vegetation from the site, but rather that vegetation be grown which utilizes the nitrogen applied during the land application process. The landowner plans to continue growing wheat on the site while utilizing the positive effects from land application.

Septage will be land applied using a spreading and screening device to disperse the waste in a wide, thin, even layer at a beneficial rate. A beneficial rate can be described as at a rate not exceeding the Annual Application Rate for production of a specific crop or grass. The screening device will be attached directly to the truck and used to screen the septage before being applied to the ground. This device will screen out the non-putrescible litter and allow the septage to be spread out in a wide, thin, even layer. The screener will then be cleaned out and the litter would be dried and bagged before being disposed of at a municipal landfill. Septage will be incorporated into the soil surface plow layer with a tractor and tillage equipment within six hours of application. The application of septage will occur in a pattern to better utilize the parcels, and to avoid applying to the same spot multiple times. Septage may be applied on frozen or snow-covered ground only if no other reasonable treatment method is available. Reasonable treatment method options include hauling the waste to a wastewater treatment plant or to a septage storage, treatment, or dewatering facility that will accept the waste and that is within 25 miles of the point of generation. If application to frozen or snow-covered ground is necessary, pumpings may only be land applied on sites that have a slope of less than or equal to 3%, where the land is not within a 100-year floodplain, and when the waste is either alkali-stabilized immediately or incorporated into the soil as soon as the weather permits.

Land application will occur as needed, at a rate not exceeding the Annual Application Rate (AAR) in gallons per acre. For septage, the AAR is calculated based upon the production of a specific crop or grass, as follows:

AAR = Crop Nitrogen Requirement/0.0026 for septage waste
AAR = Crop Nitrogen Requirement/0.0052 for portable toilet waste

The wheat at this location has a nitrogen requirement of 160 pounds/acre. The resulting AAR for septage is 61,538 gallons per acre, and is equal to approximately 2.26 inches of liquid applied per acre. For comparison, the average annual precipitation received during a calendar year in Fort Peck, Montana is 12.5 inches of rain. At the time of application, the applicant is estimating 80,000 gallons or less of septage, and 10,000 gallons or less of graywater equaling approximately 90,000 gallons of septage land applied annually. 90,000 gallons equates to approximately 3.31 inches of liquid applied to this site, but it is calculated as an amount over only one acre. The applicant will use only one parcel or a section of one parcel each year, and spread the septage over multiple acres. This amount of septage is minimal compared to the precipitation that will occur in this area, but will provide much needed nutrients to the soil and crops. With a yearly estimation of 90,000 gallons, and an AAR of 61,538 gallons per acre, the applicant needs approximately 1.5 acres per year for the land application activities. Due to the larger fields and the possibility of business growth, the applicant will spread the septage over a larger acreage to better fertilize the soils and not exceed the AAR. The proposed land application site will accommodate the proposed volumes, and land application activities will not result in an exceedance of the AAR.

Land application will be limited only to those areas approved by DEQ. Fewer's will mark the approved boundaries of the land application site with either flags, stakes, or rock cairns to ensure wastes are applied only in the approved areas. The site will not be used until the boundaries have been placed and approved by DEQ or the local county sanitarian.

# 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES BY RESOURCE

## 3.1 LOCATION DESCRIPTION AND STUDY AREA

The study area for the proposed action include, (1) all lands and resources in the proposed land application site; and (2) those areas identified by technical disciplines as "resource analysis areas" that are beyond the described land application site. Resource analysis areas are identified for each technical discipline.

## 3.2 TERRESTRIAL AND AQUATIC LIFE AND HABITATS

The analysis area for wildlife is area within the property boundaries of the Jennifer Fewer property. The analysis methods included DEQ's research of the Montana Natural Heritage Program (MNHP) database to determine the presence of threatened, listed, and/or endangered plant and animal species. DEQ personnel also walked the site to observe the resources, habitats, land uses, and species present. The following analysis provides a habitat-based approach to determine effects of the proposed site on listed species.

The proposed land application site is in the Big Sagebrush Steppe and Great Plains Mixedgrass Prairie ecosystem of Eastern Montana. The area seen as farm fields is also recognized as 134 acres of cultivated crops on the Jennifer Fewer property by the MNHP. The areas surrounding the farm fields are dominated by perennial grasses and shrubs with primarily fine and medium textured soils. The proposed land application parcels are located within the cultivated crop areas of the region and will not disturb the grassland or shrub dominated hillsides.

Research of the area shows the proposed 94-acre site is not located within a Sage Grouse core, connectivity and general habitat. A search of the Montana Natural Heritage Program found records for Township 26 North and Range 40 East to contain ten species of concern and zero special status species. A search of the U.S. Fish and Wildlife Service (USFWS) listing of endangered, threatened, proposed, and candidate species in Valley County Montana revealed the presence of zero candidates, three endangered, zero proposed threatened, three threatened and two recovery species.

The USFWS search for Valley County listed the recovery species as the Bald Eagle and the Gray Wolf. The endangered species are the Whooping Crane, Least Tern, and Pallid Sturgeon. The threatened species were the Northern Long-eared Bat, Red Knot, and Piping Plover.

The search of the Montana Natural Heritage Program indicated the Golden Eagle, Great Blue Heron, Burrowing Owl, Greater Sage-Grouse, Piping Plover, Bobolink, Caspian Tern, Loggerhead Shrike, Sage Thrasher, and Least Tern as avian species of concern in the Township and Range of the proposed site location, a 36-square mile area. The Gray Comma was the only listed insect of concern.

Designation as a species of concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to make proactive decisions regarding species conservation. Because of the limited development and lack of human population in the area, there remains adequate acreage of similar habitat available near the proposed site to accommodate any species that would be forced to relocate due to the proposed activities. With proposed activities of land application mimicking farming and no proposal to develop additional land, the proposed sites will not affect any terrestrial or aquatic habitats.

There are three ponding areas and a seasonal drainage located on the Jennifer Fewer property. The setback requirement of 150 feet from wetlands or seasonal drainages will negate any impacts to aquatic systems from land application. Because no continuously active aquatic systems exist within the boundaries of the proposed land application parcels, it is unlikely that there is any significant aquatic life or habitat anywhere on the site, and therefore would be no impacts.

The proposed site location is in an agriculturally developed area dominated by farm fields, and surrounded by grassland and sage brush hillsides. The surrounding property encompasses approximately 700 additional acres of similar habitat to the north and west. The proposed 94-acre site will be used on a rotational basis, allowing crops to be grown on the parcels that are not currently being used for land application. The applicant plans to use one parcel a year which will allow wheat to be grown on the other two parcels.

The quantity and quality of crops grown will be enhanced by the proposed land application activities. When properly managed, septage is a valuable soil conditioner which contains nutrients and moisture. This can reduce reliance on chemical fertilizers for agriculture. A good land application program recognizes the potential benefits of septage and employs practices to maximize these benefits. The acreage available for land application will be rotated on an annual basis, so that parcels used one year will be inactive the next year. This rotation allows vegetation or the crop of choice to utilize nitrogen and other nutrients added from the land application process. When applied as a soil conditioner, septage provides benefits to agricultural land by the adding moisture, organic matter, and nutrients to the soil without adversely affecting public health. Land application of septage and graywater at this site will have a positive impact from the addition of nutrients and moisture. The organic matter added from the proposed activity will also improve soil tilth, enhancing the continued production of wheat crops.

## 3.3 HYDROLOGY

The analysis area for hydrology is the proposed 94-acre land application site. Some discussion of regional geology, based upon published reports, is also provided. The analysis methods for hydrology included reviewing: wetlands and jurisdictional waters information, on-site drilling reports, publications of the Montana Bureau of Mines and Geology, and published topographic maps. DEQ personnel also visited the site to identify drainages and any other topographical features that could be places of concern.

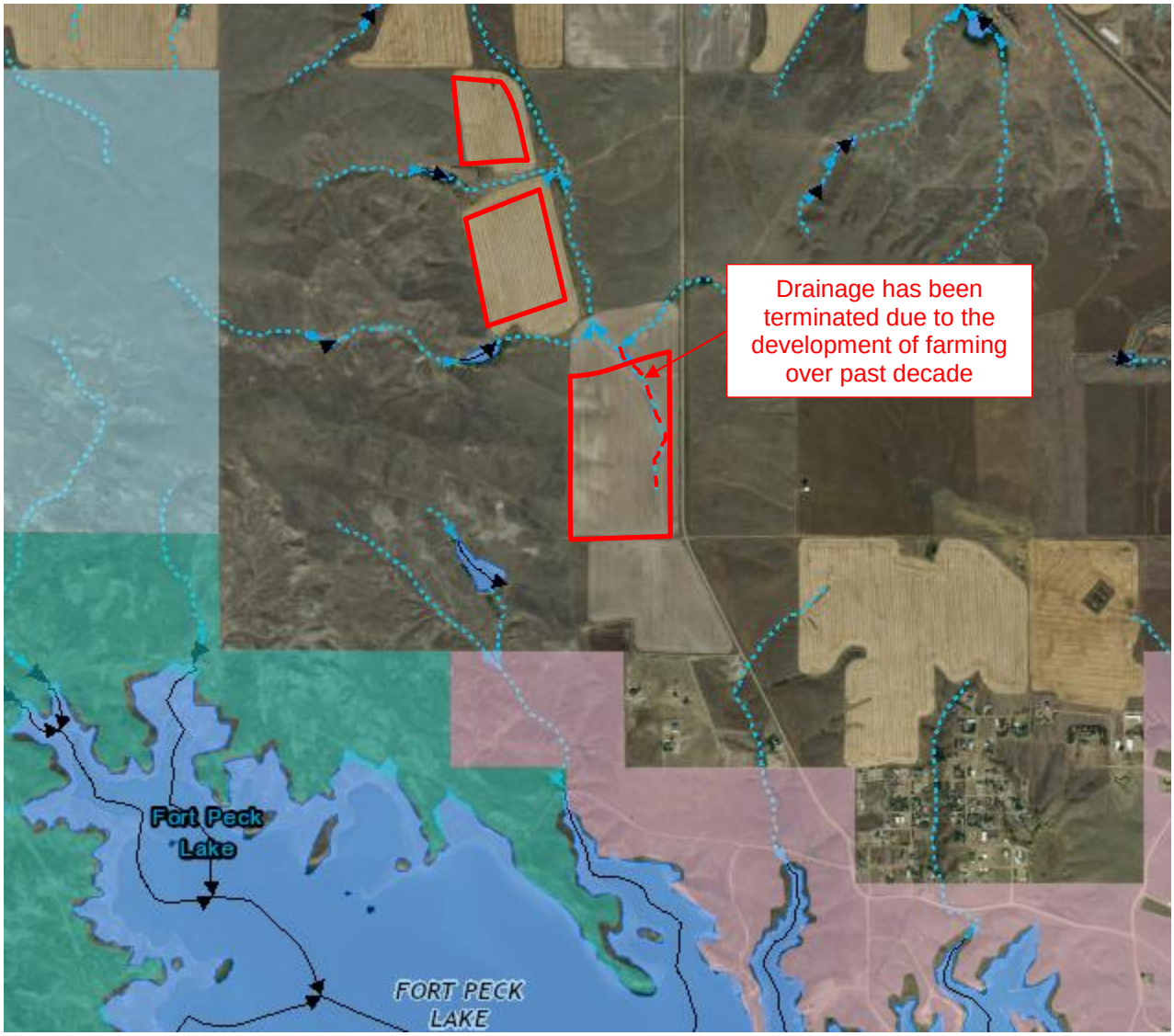
### 3.3.1 Surface Water

The proposed land application site is in northeast Montana, west of the town of Fort Peck. Fort Peck is located off the north shore of Fort Peck Lake, which is connected to the Missouri River. Fort Peck Lake is located 0.6 miles to the south and can be seen in Figure 3.1. The main drainage near the proposed site area is the Borton Coulee, which drains water from the south, starting on the Fewer property and heading north. This meandering drainage ditch eventually heads back east and south connecting to Fort Peck Lake. The drainage that formed on the south end of the Fewer property has been terminated by the development of farming. These drainages can be seen in Figure 3.1, and both show seasonal flow to the east and then north. Due to the development of farming, the parcels proposed for land application sit elevated to the surrounding areas and seasonal drainages. The setback requirements also prohibit land application activities within 150 feet. The landscape of the proposed site generally slopes to the east, with foothills to the west. All watershed from the southern half of the property generally flows to the south and away from the proposed site. There are no seasonal drainages or ephemeral ponding areas within the proposed site boundaries. The ephemeral drainages located on the property are outside of the minimum requirements for distance to surface water. A site visit and seasonal satellite images show that seasonal drainages no longer flow through the areas used for farming on this property.

While satellite images show no drainages forming, or occurring, within the site during the past 20 years, these channels have been known to reform or migrate. If any ephemeral surface waters form within the site, the pumper will maintain the required 150-foot setback from these areas. The septage will be screened and land applied using a spreader bar so that wastes are applied in a wide, thin, and even layer. All waste will be

incorporated within six hours of application, ensuring there are no impacts to surface water.

**Figure 3.1 Site in Red**



### 3.3.2 Groundwater

Groundwater underlying the Fort Peck area is in Cretaceous shales and sandstones. Above these lie glacial sediments deposited by the Bull Lake Glacier. These glacial, lake, and alluvium deposits consist mainly of siltstone, mudstone, claystone, sandstone, and gravels. Groundwater in these deposits occurs under both confined and unconfined conditions. Most major aquifers are confined in sandstones of Tertiary and Cretaceous Age, with some unconfined systems in the overlying glacial and alluvial deposits of Quaternary Age.

The Montana Bureau of Mines and Geology, Groundwater Information Center (GWIC) is DEQ's reference for well data in Montana. All wells that were documented with GWIC when this EA was written were considered. Any well not documented in GWIC is not included in this EA, but if wells are proven to be within setbacks, the setbacks will still be maintained by adjusting the site boundaries.

The GWIC database locates wells by section, and identified no wells in Section 15 where the proposed land application site is located. Section 10, to the north, and Section 23, to the east each contain one GWIC documented well. For this EA, DEQ evaluated well data from these neighboring sections due to the lack of documented wells in Section 15.

Table 3.1 summarizes well information for the wells that were identified near the proposed land application site. Because the data in GWIC is based on well drillers' records, the details are not field verified for accuracy. Further, the GWIC database contains well information only for submitted drilling record; there may be additional wells in the area that are not contained in the database because the records were not submitted to GWIC. This analysis is based on the information contained in the GWIC database.

According to the GWIC database, groundwater is in this area at an average elevation of 2,160 feet above sea level. This is determined by calculating the elevation of the static water level (SWL) of the two wells located nearest the proposed site within Sections 10 and 23. The proposed site sits at 2,250 feet above sea level. The thickness of the unsaturated glacial, lake, and alluvium deposits that overlie the local groundwater aquifer is approximately 90 feet. Other GWIC well data from Section 13 shows ground water approximately 117 feet below ground surface. While there is a limited amount of well data, DEQ can assume the static water level of groundwater is beneath the six foot minimum required at land application locations. The spreading of septage at the proposed site will have no effect on the groundwater due to the deep SWL.

**Figure 3.2: Location of Documented Water Supply wells within 0.5 miles**
**(Site application boundaries outlined in red, wells in blue circles, well # in black)**

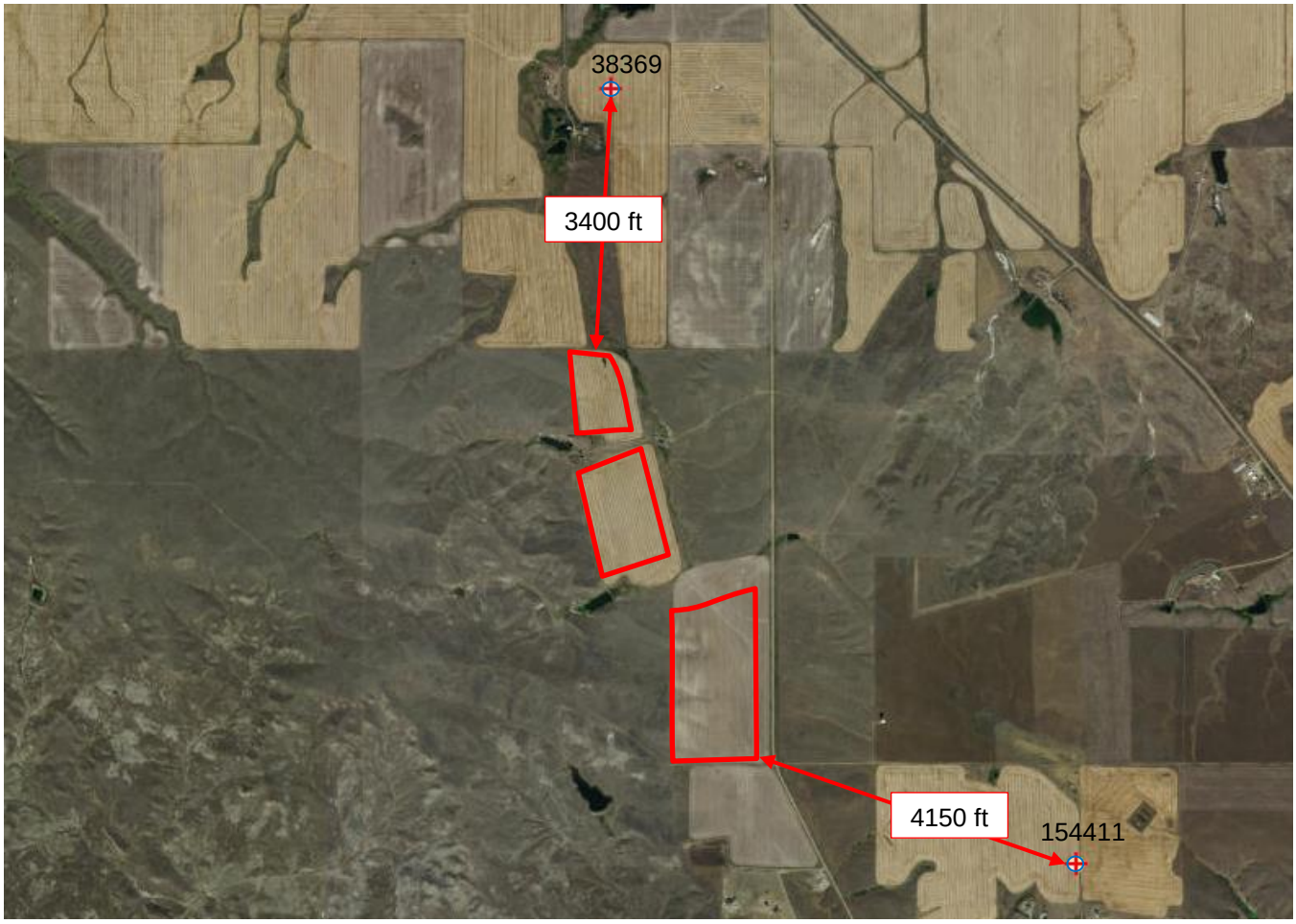



**Table 3.1: Summary of Nearby Wells**

| Township | Range | Section | Well Number | Total Depth | Static Water Level | Date Drilled | Use |
|---|---|---|---|---|---|---|---|
| 26N | 40E | 10 | 38369 | 745 | 90 | 10/4/1966 | Stock |
| 26N | 40E | 23 | 154411 | 120 | - | 7/9/1994 | Abandoned |

*(Source: Montana Bureau of Mines and Geology, Ground Water Information Center) The total depth column is the depth drilled, which may be deeper than the bottom of the completed well. Static water level is the level of water measured in the well at the time of installation. All data is based upon the driller's logs and may not be reported for every well.*

Septage will be land applied in a wide, thin, even layer at a rate not exceeding the AAR, and will be incorporated into the soil surface plow layer within six hours of application. As required, static water levels are greater than six feet below ground surface. Pumpings may not be applied within 100 feet of a drinking water source. The nearest documented well to the proposed land application site is 3,400 feet to the north. All static water levels in the wells nearest the location are significantly deeper than the required 6-foot minimum and greater than 100 feet minimum from the site boundaries. If any wells are drilled within the 100-foot setback, the proposed site will adjust its borders to maintain the proper setbacks. There is no anticipated impact to the groundwater, and to groundwater supply wells, because of the proposed land application activities.

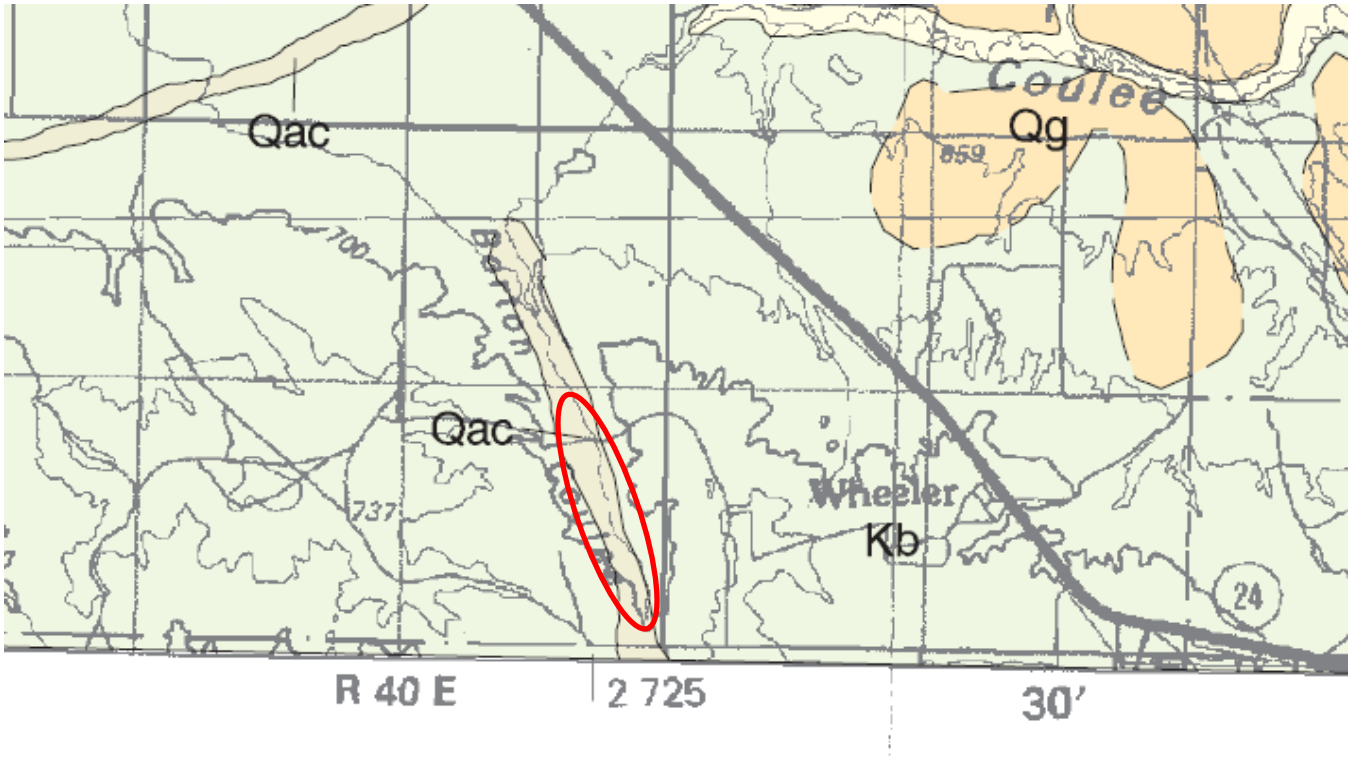
## 3.4 GEOLOGY AND SOILS

The analysis area for geology is the proposed 94-acre land application site. A discussion of regional geology, based upon published reports, is also provided herein. The analysis methods for geology included reviewing: on-site drilling information, publications of the Montana Bureau of Mines and Geology, the U.S. Geological Survey, and the U.S. Department of Agriculture's Natural Resource Conservation Service, along with their associated geology and soil maps and drawings. A site visit was also conducted by DEQ personnel to better analyze the soils of the site.

The proposed land application site is in northeastern Montana, west of the Town of Fort Peck. The proposed site sits 0.6 miles to the north of Fort Peck Lake, the remnants of a much larger glacial lake formed by the movements of the Laurentide Ice Sheet. The Bull Lake Glacier pushed down from Canada in the Quaternary Ice Age lasting approximately 70,000 years reaching south of Fort Peck Lake. When the glaciers withdrew, they left large amounts of glacial deposits behind. These deposits sit on top of the Bearpaw Shale of the Late Cretaceous Age. The glacial deposits are overlain by other alluvium, till, outwash, and gravel deposits. These deposits can be seen in the area anywhere from 0 to up to 200 feet deep before shale is reached. Much of the deposits are seen as a sandstone or siltstone layer ranging from yellowish brown to dark brown and pale gray.

The United States Department of Agriculture's (USDA) soil survey indicates the Jennifer Fewer property is comprised of 8.1% Lisam-Dilts clays, 38.1% Scobey-Kevin clay loams, 18.7% Scobey-Sunburst clay loams, and 35.2% Sunburst-Lisam complex. The proposed 94-acre land application site is situated almost entirely in the section listed as Scobey-Kevin clay loams and is typically seen in 2-8% slopes. Research of the Scobey-Kevin clay loams show a typical profile of clay loam and clay from 0-79 inches deep and is listed as a well-drained soil. It shows a frequency of flooding as none and a frequency of ponding as none.

**Figure 3.3: General Site Geology Map (Site location is in Red)**




| | |
|---|---|
| **Qac** | **Alluvium-colluvium** |
| **Kb** | **Bearpaw Shale** |
| **Qg** | **Glacial deposits** |

*Source: Montana Bureau of Mines and Geology, Geologic Map of the Glasgow 30' x 60' Quadrangle, Northeast Montana. 1999*

The geology and soils of the proposed land application site provide for a high probability of success paired with the increased growth of crops. The alluvium deposits have resulted in soils that will be affected positively by the proposed land application activities. The clay loam and sandy loams of the area will be infiltrated and store moisture because of the land application process. The spreading device will apply a thin, even layer of septage to the soil, and the loams will absorb the moisture quickly in this dry climate. The surface soils are very suitable for land application and if applied correctly, there should be no ponding of wastes. In addition, septage will be incorporated within six hours of application. Septage land application activities will provide the moisture, nutrients, and tilth needed to increase the production of crops on the property, and should increase the wheat yield in the future. There are no anticipated negative impacts to the geology and soils in the area from this proposed activity.

## 3.5 CLIMATE

The analysis area for climate is the site of the proposed 94-acre land application site. The analysis methods for climate included a site visit to the proposed land application site as well as researching data composed by Weatherbase.com for Fort Peck, Montana. Data was comprised of averages based on climate records collected over the past 118 years.

The climate in the area for the proposed land application site is typical of the low altitude, semi-arid steppe region in the Fort Peck area. The tables below provide a summary of monthly climate information. The average temperature of Fort Peck, Montana is 42 degrees, with the warmest month being July and the coldest month being January. The average amount of precipitation is 12.5 inches per year, with June having the most precipitation at 2.9 inches. The least precipitation falls in February, with an average of 0.4 inches. Table 3.2 shows averages for temperature and precipitation in the Fort Peck area.

**Table 3.2 Temperature and Precipitation in Fort Peck, Montana**

TEMPERATURE

**Average Temperature** — Years on Record: 118

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | 42.2 | 10 | 14.5 | 26.8 | 45.1 | 55.9 | 64.3 | 72 | 69.6 | 57.9 | 45.2 | 28.6 | 16.1 |

**Average High Temperature** — Years on Record: 118

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | 55.7 | 21.8 | 26.8 | 38.8 | 58.8 | 70.1 | 77.9 | 87.8 | 85.6 | 73 | 59.2 | 40.5 | 27.6 |

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**Average Low Temperature** — Years on Record: 118

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | 28.7 | -1.9 | 2.1 | 14.8 | 31.3 | 41.7 | 50.6 | 56.3 | 53.6 | 42.8 | 31.2 | 16.7 | 4.6 |

PRECIPITATION

**Average Precipitation** — Years on Record: 118

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | 12.5 | 0.5 | 0.4 | 0.7 | 1 | 1.8 | 2.9 | 1.4 | 1.2 | 1 | 0.7 | 0.4 | 0.5 |

**Average Number of Days With Precipitation** — Years on Record: 118

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Days | 69 | 5 | 4 | 5 | 5 | 8 | 11 | 7 | 6 | 5 | 4 | 4 | 5 |

*Source: www.weatherbase.com*

Net evaporation rates were also obtained from the Western Regional Climate Center to ensure the proposed site could utilize the increase in moisture. The net evaporation rates for the Fort Peck area range from 41.32 inches per year in Fort Peck, to 45.38 inches per year at the Fort Peck Power Plant. This average of 43 inches per year proves the soils have significant capacity for extra moisture outside of the annual precipitation rate of 12.5 inches per year.

Due to the extremely dry climate, the low average annual precipitation, and the high evaporation rate, the proposed land application site will have a positive impact on the site's environment. The dry and hot months of June, July, August, and September correlate to the busy season of the average Montana septic tank pumper business. Dry soils and crops will welcome the increase in moisture from septage land application activities, which will help the site to flourish.

## 3.6 AESTHETICS

The proposed land application site is located within 784 acres of the landowner's property, with 134 acres of recognized cultivated crops. With setbacks, 94 acres became available for land application. No other development or grazing is anticipated at the land application site. The site is not located on a prominent topographical feature, nor is it visible from a highly populated area, although there are homes located south of the site. The application of septage is like the day to day activities of farming and ranching in the area, and will not cause a change in the overall aesthetics of the area.

The land application site is not deemed a public nuisance. According to Montana Code Annotated (MCA), Section 27-30-101:

> *(1) Anything that is injurious to health, indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, or that unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, river, bay, stream, canal, or basin or any public park, square, street, or highway is a nuisance. (2) Nothing that is done or maintained under the express authority of a statue may be deemed a public or private nuisance*.

DEQ authorizes and regulates these activities through licensure and the activity is therefore not a public nuisance.

The natural soil bacteria use the carbon in the waste as a fuel source. This activity results in the breakdown of wastes, including odors. Odors will be minimized with proper site management. While the presence of odors may be detectable during the land application activity, these odors are only typical when close to the activity. Wind is typical in the Fort Peck area and will quickly disperse odors resulting from land application activities. Although DEQ does not regulate odors, the presence of odors outside the land application area could mean that wastes have been over-applied or not incorporated as required. DEQ personnel and/or the local county sanitarian would respond to odor complaints to determine if wastes have not been properly managed. There are no anticipated additional aesthetic impacts because of the land application activities.

### 3.7 HUMAN HEALTH & SAFETY

The analysis area for human health and safety is the 784 acres of Jennifer Fewer property and the 94 acres within proposed for land application activities. The septage and graywater will be land applied at the site using a screener and a dispersive mechanism. The dispersive mechanism applies the waste in a wide, thin, even layer at a beneficial rate, and the screener will prevent any litter from reaching the land. Septage will be incorporated into the soil surface plow layer with a tractor and tillage equipment within six hours of application. The owners and farmers of this property do not have any livestock that grazes these sites: they are used only for crop growth. If grazing were to occur, it would have to be after a 30 day wait time after last application, as required.

The proposed land application area is located on private property. Public access into the site is controlled by multi-strand barbed wire fences. All access roads to the site are gated and marked with no trespassing signs. There are no additional human health and safety concerns when the site is operated in accordance with state SDLL. Therefore, no additional impacts on human health and safety are anticipated because of land application activities.

### 3.8 DEMAND FOR GOVERNMENT SERVICES

The government resources that will be utilized for the oversight of the operation and maintenance of this site would be the Valley County Sanitarian and the DEQ's Solid Waste Program. The Valley County Sanitarian and DEQ's Solid Waste staff will conduct periodic inspections of land application activities at the site. Volumes of waste applied at the site from the land application process will also be monitored by DEQ staff, ensuring the AAR is not exceeded. Site inspections are a common, regular activity DEQ performs for all solid waste and septic tank pumper land application locations. Therefore, there is a minor impact to the demand for government services.

### 3.9 TRAFFIC

The service area of Fewer Pumping is the Fort Peck area of Valley County. The proposed land application site will be accessed from Duck Creek Road, a road on the south side of Montana Highway 24 S. Duck Creek Road currently supports traffic to rural homes, farms, and ranches, including heavy equipment associated with the current agricultural activities in the area. Once off Duck Creek Road, the site is accessed through private roads which will be maintained by the applicant. The local roads are frequently used by the applicant and farmer of the site, and there T are no anticipated impacts to traffic because of the proposed land application activities, as there will not be a significant increase of traffic on Duck Creek Road.

## 4. CONCLUSIONS AND FINDINGS

### 4.1. EVALUATION OF MITIGATION, STIPULATIONS, AND OTHER CONTROLS ENFORCEABLE BY THE AGENCY OR ANOTHER GOVERNMENT AGENCY

The proposed land application site, and the operation and maintenance (O&M) plan will meet the requirements of the Montana Septage Disposal and Licensure Law, Air and Water Quality Acts, and other applicable Montana environmental laws and regulations, as well as county ordinances. Adherence to the regulations and the approved O&M plan will mitigate the potential for harmful releases and impacts to human health and the environment by the proposed activity at the site.

### 4.2. FINDINGS

MEPA requires state agencies to conduct an environmental review when making decision or planning activities that may have a significant impact on the environment. MEPA and the administrative rules promulgated under MEPA define the process to be followed when conducting an environmental review. The Draft and Final EA DEQ prepared regarding Fewer's application for approval of a new land application site complies with MEPA's procedural requirements.

SDLL recognizes that the health and welfare of Montana citizens is endangered by improperly operated sites and unregulated disposal of wastes. The SDLL and associated Administrative Rules regulate septic tank pumpers and land application sites to protect public health and safety, and to conserve natural resources whenever possible (Section 75-10-202, MCA). The basic objective of land application site approval is to establish a site for the ongoing disposal of septage that provides nutrients, moisture, and organic matter to soils, enhancing vegetative growth.

The site will be operated according to the SDLL and Administrative Rules for land application. The applicant will submit disposal records with the dates and times of land application and incorporation, and the general areas where septage is applied. The site will also be inspected on a regular basis to verify compliance with the SDLL.

DEQ has determined that there are no significant impacts from this project that would require the preparation of an Environmental Impact Statement (EIS). Therefore, an EA is the appropriate level of environmental review and preparation of an EIS is not required. The impacts from this site are not severe or geographically extensive. Issuance of the license would not set a precedent or commit DEQ to future actions with significant impacts. Operation of the site would not conflict with any local, state, or federal laws, requirements, or formal plans.

## 5. OTHER GROUPS OR AGENCIES CONTACTED OR WHICH MAY HAVE OVER-LAPPING JURISDICTION

Valley County Environmental Health Department
United States Department of Agriculture
Montana Natural Heritage Program
Montana Department of Environmental Quality
Montana Historical Society State Historic Preservation Office
United States Geological Survey
Montana Bureau of Mines and Geology
US Fish & Wildlife Service
Montana Sage Grouse Habitat Conservation Program

## 6. AUTHORS

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**Date:** July 13, 2018

## 7. REFERENCES:

United States Department of Agriculture, Soil Survey. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Montana Tech of the University of Montana, Montana Bureau of Mines and Geology, Groundwater Information Center. http://mbmggwic.mtech.edu/

Montana Bureau of Mines and Geology, Geologic map of Glasgow 30'x60' Quadrangle, 1999

United States Department of Agriculture, 2012, Natural Resources Conservation Service, Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Montana Natural Heritage Program. http://mtnhp.org/default.asp

Montana Topographic Maps. http://www.topozone.com/montana/

Public Land Survey System, Township and Range, Google Earth. http://www.earthpoint.us/Townships.aspx

Whitehall, Montana Weather Averages Summary. http://www.weatherbase.com

Average Pan Evaporation Data by State. https://wrcc.dri.edu/htmlfiles/westevap.final.html